

Program of Study

Engineering & Technology

This program of study should serve as a guide, along with other career planning materials, as you continue your career path. Courses listed are only recommended coursework and should be individualized to meet each learner's educational and career goals.

	English	Math	Science	Social Studies / Science	S.D. Required Electives	Foundational CTE &/or Cluster related General Ed.	Career and Technical Education Cluster Specific
➤ Interest Inventory Administered and Plan of Study Initiated for all Students							
9	English I	Algebra I or Geometry	Physical Science	World History & Geography	PE/Health	Leadership & Personal Development	Introduction to Technology Education
10	English II	Geometry or Algebra II	Biology I		Fine Arts Elective		Introduction to Engineering (Project Lead the Way) Robotics
➤ Academic/Career Advisement Provided – College Placement Assessments							
11	American Lit & Speech	Algebra II or Trigonometry	Anatomy & Physiology or Physics	US History	(2 credits) World Language or Computer Studies or Approved CTE	Youth Internship	Technical Drafting Electronics
12	English IV	Trigonometry or Calculus OR College Credit Math	AP Chemistry	U.S. Government Psychology	Personal Finance or Economics	Senior Project	Engineering Design and Development (Project Lead the Way)
Post-secondary	Composition	College Algebra	Chemistry				
Blue Text – College level - dual credit – articulated courses Red Text – Classes available through Virtual High School * Courses can be articulated to Postsecondary					The general courses identified in this Program of Study are those required as part of SD Advanced Pathway to Graduation.		

A Program of Study can be utilized to assist a student in creating a Personal Learning Plan.
For more information visit: <http://www.doe.sd.gov/octe/careerclusters/index.asp>

 Agriculture, Food & Natural Resources	1	The production, processing, marketing, distribution, financing, and development of agricultural commodities and resources including food, fiber, wood products, natural resources, horticulture, and other plant and animal products/resources.
 Architecture & Construction	2	Careers in designing, planning, managing, building, and maintaining the built environment.
 Arts, A/V Technology & Communications	3	Designing, producing, exhibiting, performing, writing, and publishing multimedia content including visual and performing arts and design, journalism, and entertainment services.
 Business, Management & Administration	4	Business Management and Administration careers encompass planning, organizing, directing, and evaluating business functions essential to efficient and productive business operations.
 Education & Training	5	Planning, managing, and providing education and training services, and related learning support services.
 Finance	6	Planning, services for financial and investment planning, banking, insurance, and business financial services.
 Government & Public Administration	7	Executing governmental functions to include governance; national security; foreign service; planning; revenue and taxation; regulation; and management and administration at the local, state, and federal levels.
 Health Science	8	Planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development.
 Hospitality & Tourism	9	Hospitality and Tourism encompasses the management, marketing, and operations of restaurants and other food services, lodging, attractions, recreation events, and travel-related services.
 Human Services	10	Preparing individuals for employment in career pathways that relate to families and human needs.
 Information Technology	11	Building linkages in IT occupations framework for entry-level, technical, and professional careers related to the design, development, support, and management of hardware, software, multimedia, and systems integration services.
 Law, Public Safety, Corrections & Security	12	Planning, managing, and providing legal, public safety, protective services, and homeland security, including professional and technical support services.
 Manufacturing	13	Planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and manufacturing/process engineering.
 Marketing, Sales & Service	14	Planning, managing, and performing marketing activities to reach organizational objectives.
 Science, Technology, Engineering & Mathematics	15	Planning, managing, and providing scientific research and professional and technical services (physical science, social science, engineering) including laboratory and testing services, and research and development services.
 Transportation, Distribution & Logistics	16	Planning, management, and movement of people, materials, and goods by road, pipeline, air, rail, and water and related professional and technical support services such as transportation infrastructure and facility maintenance.

Directions: Circle the items in each box that best describe you. You may make as many or as few circles in each box as you choose. Add up the number of circles in each box. Look to see which three boxes have the highest numbers. Find the corresponding Career Clusters on the front page to see which Career Clusters you may want to explore.

Box 1	Activities that describe what I like to do: 1. Learn how things grow and stay alive. 2. Make the best use of the Earth’s natural resources. 3. Hunt and/or fish. 4. Protect the environment. 5. Be outdoors in all kinds of weather. 6. Operate machines and keep them in good repair.	Personal qualities that describe me: 1. Self-reliant 2. Nature lover 3. Physically active 4. Planner 5. Creative problem solver	School subjects that I like: 1. Math 2. Life Sciences 3. Earth Sciences 4. Chemistry 5. Agriculture	Total number circled in Box 1 <div></div>
Box 2	Activities that describe what I like to do: 1. Read and follow blueprints and/or instructions. 2. Picture in my mind what a finished product looks like. 3. Work with my hands. 4. Perform work that requires precise results. 5. Visit and learn from beautiful, historic, or interesting buildings. 6. Follow logical, step-by-step procedures.	Personal qualities that describe me: 1. Curious 2. Good at following directions 3. Pay attention to detail 4. Good at visualizing possibilities 5. Patient and persistent	School subjects that I like: 1. Math 2. Drafting 3. Physical Sciences 4. Construction Trades 5. Electrical Trades/ Technology Education	Total number circled in Box 2 <div></div>
Box 3	Activities that describe what I like to do: 1. Use my imagination to communicate new information to others. 2. Perform in front of others. 3. Play a musical instrument. 4. Perform creative, artistic activities. 5. Use video and recording technology. 6. Design brochures and posters.	Personal qualities that describe me: 1. Creative and imaginative 2. Good communicator/ good vocabulary 3. Curious about new technology 4. Relate well to feelings and thoughts of others 5. Determined/tenacious	School subjects that I like: 1. Art/ Graphic Design 2. Music 3. Speech and Drama 4. Journalism/Literature 5. Audiovisual Technologies	Total number circled in Box 3 <div></div>
Box 4	Activities that describe what I like to do: 1. Perform routine, organized activities but can be flexible. 2. Work with numbers and detailed information. 3. Be the leader in a group. 4. Make business contact with other people. 5. Create reports and communicate ideas. 6. Plan my work and follow instructions without close supervision.	Personal qualities that describe me: 1. Organized 2. Practical and logical 3. Patient 4. Tactful 5. Responsible	School subjects that I like: 1. Computer Applications 2. Accounting 3. Math 4. English 5. Economics	Total number circled in Box 4 <div></div>
Box 5	Activities that describe what I like to do: 1. Help others with their homework or to learn new things. 2. Go to school. 3. Direct and plan activities for others. 4. Handle several responsibilities at once. 5. Acquire new information. 6. Help people overcome their challenges.	Personal qualities that describe me: 1. Friendly 2. Decision maker 3. Helpful 4. Innovative/Inquisitive 5. Good listener	School subjects that I like: 1. Language Arts 2. Social Studies 3. Math 4. Science 5. Psychology	Total number circled in Box 5 <div></div>
Box 6	Activities that describe what I like to do: 1. Work with numbers. 2. Work to meet a deadline. 3. Make predictions based on existing facts. 4. Have a framework of rules by which to operate. 5. Analyze financial information and interpret it to others. 6. Handle money with accuracy and reliability.	Personal qualities that describe me: 1. Trustworthy 2. Orderly 3. Self-confident 4. Logical 5. Methodical or efficient	School subjects that I like: 1. Accounting 2. Math 3. Economics 4. Banking/Financial Services 5. Business Law	Total number circled in Box 6 <div></div>
Box 7	Activities that describe what I like to do: 1. Be involved in politics. 2. Negotiate, defend, and debate ideas and topics. 3. Plan activities and work cooperatively with others. 4. Perform a variety of duties that may change often. 5. Analyze information and interpret it to others. 6. Travel and see things that are new to me.	Personal qualities that describe me: 1. Good communicator 2. Competitive 3. Service-minded 4. Well-organized 5. Problem solver	School subjects that I like: 1. Government 2. Language Arts 3. History 4. Math 5. Foreign Language	Total number circled in Box 7 <div></div>
Box 8	Activities that describe what I like to do: 1. Work under pressure 2. Help sick people and animals. 3. Make decisions based on logic and information. 4. Respond quickly and calmly in emergencies. 5. Work as a member of a team. 6. Follow guidelines precisely and meet strict standards of accuracy.	Personal qualities that describe me: 1. Compassionate and caring 2. Good at following directions 3. Conscientious and careful 4. Patient 5. Good listener	School subjects that I like: 1. Biological Sciences 2. Chemistry 3. Math 4. Occupational Health Classes 5. Language Arts	Total number circled in Box 8 <div></div>
Box 9	Activities that describe what I like to do: 1. Investigate new places and activities. 2. Work with all ages and types of people. 3. Organize activities in which other people enjoy themselves. 4. Have a flexible schedule. 5. Help people make up their minds. 6. Learn about other cultures.	Personal qualities that describe me: 1. Tactful 2. Self-motivated 3. Works well with others 4. Outgoing 5. Slow to anger	School subjects that I like: 1. Language Arts/Speech 2. Foreign Language 3. Social Sciences 4. Marketing 5. Food Services	Total number circled in Box 9 <div></div>
Box 10	Activities that describe what I like to do: 1. Care about people, their needs, and their problems. 2. Participate in community services and/or volunteering. 3. Listen to other people’s viewpoints. 4. Help people be at their best. 5. Work with people from preschool age to old age. 6. Think of new ways to do things.	Personal qualities that describe me: 1. Good communicator/good listener 2. Caring 3. Non-materialistic 4. Intuitive and logical 5. Non-judgmental	School subjects that I like: 1. Language Arts 2. Psychology/Sociology 3. Family and Consumer Sciences 4. Finance 5. Foreign Language	Total number circled in Box 10 <div></div>
Box 11	Activities that describe what I like to do: 1. Work with computers. 2. Reason clearly and logically to solve complex problems. 3. Use machines, techniques, and processes. 4. Read technical materials and diagrams and solve technical problems. 5. Play video games and figure out how they work. 6. Concentrate for long periods of time without being distracted.	Personal qualities that describe me: 1. Logical/analytical thinker 2. See details in the big picture 3. Persistent 4. Good concentration skills 5. Precise and accurate	School subjects that I like: 1. Math 2. Science 3. Computer Tech/Applications 4. Communications 5. Graphic Design	Total number circled in Box 11 <div></div>
Box 12	Activities that describe what I like to do: 1. Work under pressure or in the face of danger. 2. Make decisions based on my own observations. 3. Interact with other people. 4. Be in positions of authority. 5. Respect rules and regulations. 6. Observe and analyze people’s behavior.	Personal qualities that describe me: 1. Adventurous 2. Dependable 3. Community-minded 4. Decisive 5. Optimistic	School subjects that I like: 1. Language Arts 2. Psychology/Sociology 3. Government/History 4. Law Enforcement 5. First Aid/First Responder	Total number circled in Box 12 <div></div>
Box 13	Activities that describe what I like to do: 1. Work with my hands and learn that way. 2. Put things together. 3. Perform activities that produce tangible results. 4. Apply math to work out solutions. 5. Use hand and power tools and operate equipment/machinery. 6. Visualize objects in three dimensions from flat drawings.	Personal qualities that describe me: 1. Practical 2. Observant 3. Physically active 4. Step-by-step thinker 5. Coordinated	School subjects that I like: 1. Math/Geometry 2. Chemistry 3. Trade and Industry Courses 4. Physics 5. Language Arts	Total number circled in Box 13 <div></div>
Box 14	Activities that describe what I like to do: 1. Be in charge. 2. Make displays and promote ideas. 3. Give presentations and enjoy public speaking. 4. Persuade people to buy products or to participate in activities. 5. Communicate my ideas to other people. 6. Take advantages of opportunities to make extra money.	Personal qualities that describe me: 1. Enthusiastic 2. Competitive 3. Creative 4. Self-motivated 5. Persuasive	School subjects that I like: 1. Language Arts 2. Math 3. Business Education/Marketing 4. Economics 5. Computer Applications	Total number circled in Box 14 <div></div>
Box 15	Activities that describe what I like to do: 1. Interpret formulas. 2. Find answers to questions. 3. Work in a laboratory. 4. Figure out why things work and investigate new things. 5. Explore new technology. 6. Experiment to find the best way to do something.	Personal qualities that describe me: 1. Detail-oriented 2. Inquisitive 3. Objective 4. Methodical 5. Mechanically included	School subjects that I like: 1. Math 2. Science 3. Drafting/CAD 4. Electronics/Computer Networking 5. Technology Education	Total number circled in Box 15 <div></div>
Box 16	Activities that describe what I like to do: 1. Travel. 2. See well and have quick reflexes. 3. Solve mechanical problems. 4. Anticipate needs and prepare to meet them. 5. Drive or ride. 6. Move things from one place to another.	Personal qualities that describe me: 1. Realistic 2. Mechanical 3. Coordinated 4. Observant 5. Planner	School subjects that I like: 1. Math 2. Trade and Industry courses 3. Physical Sciences 4. Economics 5. Foreign Language	Total number circled in Box 16 <div></div>